

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details

Your name	Alessandro Catenazzi
Project title	Conservation of montane forest anurans in southeastern Peru
RSG reference	27.10.07
Reporting period	January 2008 – April 2009
Amount of grant	US\$ 9,585.00
Your email address	acatenazzi@gmail.com
Date of this report	26/10/09

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Sampling anurans along elevational gradient			X	Thanks to additional funding from other organizations, the original goal was broadly expanded and the elevational gradient was sampled twice between 1200 and 3700 m (February 2008 and February 2009), again in October 2008 (only between 2500 and 3700 m), and additional localities were visited in March 2008 and January 2009
Comparison of data from 1999 and 2007-2009			X	The extensive data set includes over 400 10 x 10 m ² leaf litter plots, over 80 visual encounter surveys, for a total of over 2200 person-hours of fieldwork. A manuscript comparing anuran species richness and abundance between 1999 and 2009 is currently under review.
Collection of frog skin swabs to test for the presence of the chytrid with PCR-based assays			X	Over 2000 frogs have been swabbed at several montane forest locations in southern Peru. We are collaborating with Dr. Vance Vredenburg, San Francisco State University, who is processing these swabs with real-time PCR.
Measurement of ambient temperatures in the frog microhabitats			X	We collected temperatures at 5 locations along the elevational gradient. In addition, we also collected data on the thermal biology and heat tolerance of selected species along the gradient.
Educational activities		X		We gave class presentations to primary school children in the region. We were not able to organize the drawing contest as indicated in the original proposal. However, we published articles and photographs in local media, gave a plenary lecture at a symposium in Cusco, and plan to make results of our research available to local stakeholders, including schools. Moreover, an undergraduate student is now planning to develop her thesis based on results from this project.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

We did not encounter major difficulties during the execution of the project.

A minor difficulty that influenced our educational objectives as stated in the original proposal was the fact that the teacher we planned to hire was appointed a permanent position as director of a newly created preserve. Therefore, he was unable to participate in the project and to complete all activities. However, class presentations to primary school children given by the main investigator were very effective and guaranteed partial achievement of this goal.

Another minor difficulty was obtaining the research/collecting permit for work outside of protected areas in 2009, because the procedure now involves getting authorization from offices at two ministries (Agriculture, traditionally in charge of issuing permits, and the newly created Environment Ministry). However, the permit for 2008 was still valid for conducting research within Manu National Park throughout 2009.

3. Briefly describe the three most important outcomes of your project.

These are the most important outcomes of the project:

1. Establishment of long-term monitoring of anuran populations. This project has established one of the best datasets for montane neotropical amphibians. The Tropical Andes is the most important biodiversity hotspot for amphibians, yet information on population status and trends is scant. Data collected during fieldwork supported by RSG, along with previous data from 1999, are important to understand the dynamics and severity of biodiversity loss among neotropical amphibians.
2. New species. Five new species of frogs have already been described based on fieldwork supported by the Rufford grant: *Noblella pygmaea*, *Bryophryne nubilosus*, *B. hanssaueri*, *B. gymnotis* and *B. zonalis*. A manuscript describing two additional new species is currently under review. We plan to describe additional new species from the material collected during fieldwork supported by RSG.
3. Dissemination of results. Results from this project have been broadly disseminated, from presentations to local primary school children to scientific articles in academic journals. One of the new species, *Noblella pygmaea*, made news globally and photographs of this minute frog (among the smallest) were shown on National Geographic, Scientific American, and on print and online news outlets in Peru.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

Local communities were involved in providing personnel for the project. Nine field assistants, three of them members of native communities, participated in fieldwork between 2007 and 2009. Local communities also benefited from presentations to primary school children given in March and October 2008.

5. Are there any plans to continue this work?

Yes, there are plans to continue studying montane frogs in southeastern Peru, especially in the fields of phylogeography, physiological ecology and the host-disease dynamics with the pathogenic fungus *Batrachochytrium dendrobatidis*. These studies will assess threats, list priorities and orient conservation efforts for montane frogs in the region.

6. How do you plan to share the results of your work with others?

Results of this work have already been shared through articles in popular media and scientific publications. Below is a selected list of references for these publications. We plan to continue sharing results through the same media outlets and through academic publications. At this moment two manuscripts are under review, one describing two new species and the second reporting on decadal changes in anuran species richness and abundance at our main study site in the upper Manu National Park. We are also preparing additional manuscripts, ranging from new species descriptions to analysis of frog ecophysiology and infection prevalence of the pathogenic chytrid fungus.

Conferences and seminars (*participation costs covered by other organizations):

ESPM Wildlife & Conservation Biology Seminar Series, UC Berkeley, 2009

Society for Integrative and Comparative Biology Annual Meeting, Boston, 2009

Symposium "Biodiversidad y conservación en los Andes orientales y la Amazonia del sureste del Perú", Cusco, 2008 (plenary lecture)

World Congress of Herpetology, Manaus, 2008

Popular media:

Catenazzi, A. and J. Carrillo. 2009. Ranas del bosque nublado. *Viajeros* 27: 22–28.

News of the discovery of *Noblella pygmaea* reported by Scientific American, National Geographic News, Mongabay.com, Wildlife Extra, MSNBC, Viajeros Online, Diario del Cusco, El Comercio, Peru 21, Venezolana de television, AmbienteBrasil.com.br, Europa Press, Science Centric, Science Daily, Die Welt, Stern, Spiegel, Bild, Berliner Zeitung, Frankfurter Rundschau, Salzburger Nachrichten, Österreichischer Rundfunk, Tages Anzeiger, Klatschmagazin, Focus, Novaya Gazeta, Tiede.fi, Live Science.com, Alpha Galileo, Kryptozoologie.net, Maxisciences.com, Science et Vie Junior, and more.

Scientific articles:

Catenazzi, A., and E. Lehr. 2009. The generic allocation of "*Hyla*" *antoniiochoai* De la Riva and Chaparro, 2005 (Anura), with description of its advertisement call and ecology. *Zootaxa* (in press).

Catenazzi, A., L. O. Rodríguez and M. A. Donnelly. 2009. The advertisement call of four species of glass frogs from southeastern Peru. *Studies on Neotropical Fauna and Environment* 44: 83–91.

Lehr, E. and A. Catenazzi. 2009. A new species of *Noblella* from southern Peru is the smallest frog in the Andes. *Copeia* 2009: 148–156.

Lehr, E., and A. Catenazzi. 2009. Three new species of *Bryophryne* from southern Peru. *South American Journal of Herpetology* 4: 125-138.

von May, R., A. Catenazzi et al. 2008. Current state of conservation knowledge on threatened amphibian species in Peru. *Tropical Conservation Science* 1: 376–396.

Lehr, E. and A. Catenazzi. 2008. A new species of *Bryophryne* (Anura: Strabomantidae) from southern Peru. *Zootaxa* 1784: 1–10.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

Funds were used from January 2008 to April 2009. This reflects the length of the project as stated in the original proposal, although the fieldwork periods have been significantly extended given the availability of additional funding from other organizations. Differences in budget for transportation and personnel salaries reflect this additional field work.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Exchange rate for February 2008: 1 GBP = 1.9883 USD; 1 PEN = 0.3442

Exchange rate for February 2009: 1 GBP = 1.443 USD; 1 PEN = 0.3088

Item	Budgeted Amount	Actual Amount	Difference	Comments
Air travel and local transportation	698	1347.57	-649.57	Local transportation was more expensive than planned. Airfare for additional fieldwork was charged to this item.
Personnel	910	1487.97	-577.97	Reflects additional field work completed in 2008 and 2009. Field time was limiting for PI, so additional field assistants were hired in 2009. Exchange rate contributed to inflate costs in 2009.
Food	300	240.23	59.77	
Lodging	802	799.38	2.62	
Equipment, detection of <i>Batrachochytrium dendrobatidis</i>	2290	1284.57	1005.43	Budget does not include cost of processing swab samples, estimated at over £10,000, and covered other funding sources.
TOTAL	5000	5159.74	-159.74	

9. Looking ahead, what do you feel are the important next steps?

The most important steps are to continue publishing results of this project in academic journals, to disseminate results of the studies in popular media both locally (Cusco and Peru) and globally, and to promote further research on the host-disease dynamics of frog infection by *Batrachochytrium dendrobatidis*.

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The logo was not used in any material, but RSGF has been acknowledged as a source of funding in all scientific publications and in press releases to the media (some media kept the mention of funding source, although most omitted this information in the final version of the news article).